



# MI Flu Focus

Influenza Surveillance Updates  
Bureaus of Epidemiology and Laboratories

Michigan Department  
of Community Health



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## Current Influenza Activity Levels:

- **Michigan:** Regional influenza activity
- **National:** During February 9-15, U.S. flu activity decreased, but remained elevated

## Updates of Interest:

- **International:** Multiple additional human cases of avian influenza H7N9 confirmed in China

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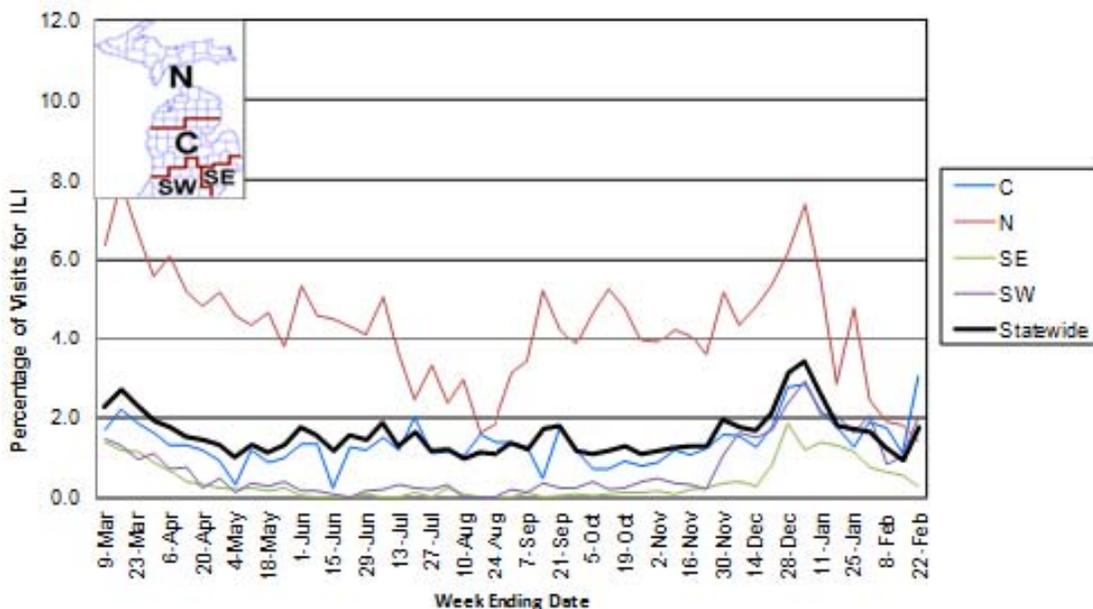
## Influenza Surveillance Reports

**Michigan Disease Surveillance System (as of February 27):** MDSS influenza data for the week ending February 22, 2014 indicated that compared to levels from the previous week, aggregate reports remained steady and individual reports slightly decreased. Aggregate reports are significantly lower than levels seen during the same time period last year, while individual reports are moderately lower.

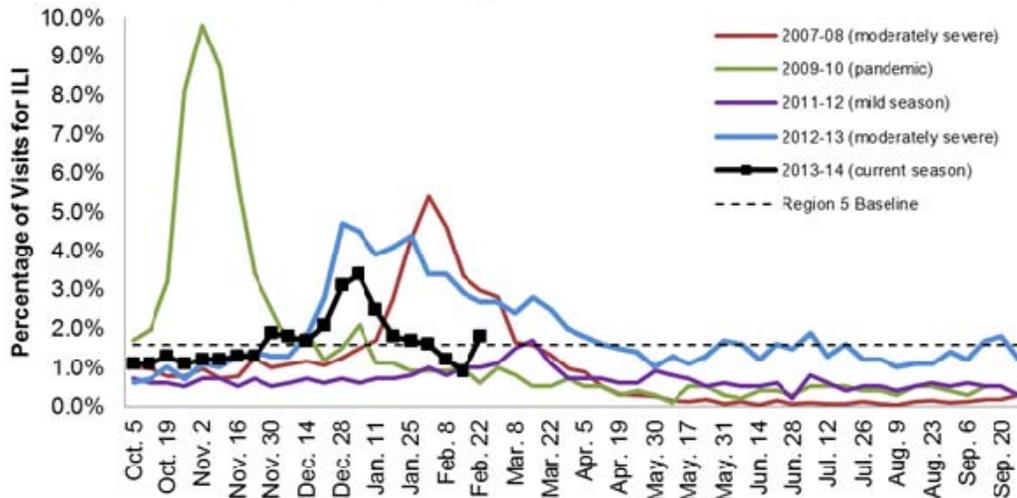
**Emergency Department Surveillance (as of February 27):** Emergency department visits due to both constitutional and respiratory complaints remained steady during the week ending February 22, 2014. Emergency department visits from constitutional alerts are moderately lower than levels during the same time period last year, while respiratory complaints were slightly lower. Both are at fall/winter baseline levels. In the past week, there were 3 constitutional alerts in the SW(1) and C(2) Influenza Surveillance Regions and 6 respiratory alerts in the SW(1), C(1) and N(4) Regions.

**Sentinel Provider Surveillance (as of February 27):** During the week ending February 22, 2014, the proportion of visits due to influenza-like illness (ILI) increased to 1.8% overall; this is above the regional baseline (1.6%). A total of 155 patient visits due to ILI were reported out of 8,843 office visits. Data were provided by 31 sentinel sites from the following regions: Central (13), North (5), Southeast (10), and Southwest (3). ILI activity increased in two regions: C (3.0%) and SW (2.0%) and decreased in two regions: N (1.4%) and SE (0.3%). Please note: These rates may change as additional reports are received.

Percentage of Visits for Influenza-like Illness (ILI)  
Reported by Sentinel Providers, Statewide and Regions  
2013-14 Flu Season



**Percentage of Visits for Influenza-like Illness (ILI) Reported by  
the US Outpatient Influenza-like Illness Surveillance Network  
(ILINet): Michigan, Select Seasons**



As part of pandemic influenza surveillance, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Stefanie DeVita at 517-335-3385 or DeVitaS1@michigan.gov for more information.

**Hospital Surveillance (as of February 27):** The CDC Influenza Hospitalization Surveillance Project provides population-based rates of severe influenza illness through active surveillance and chart review of lab-confirmed cases, starting on October 1, 2013, for Clinton, Eaton, Genesee, and Ingham counties. 9 new cases (3 pediatric, 6 adult) were identified since the last report. As of February 27<sup>th</sup>, there have been 200 influenza hospitalizations (55 pediatric, 145 adult) within the catchment area. Based on these counts, there are 26.3 pediatric influenza hospitalizations/100,000 population and 21.3 adult influenza hospitalizations/100,000 population within the catchment area.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. 6 hospitals (SE,SW,C,N) reported for the week ending February 22, 2014. Results are listed in the table below.

Age Group	Hospitalizations Reported During the Previous Week	Total Hospitalizations 2013-14 Season
0-4 years	2 (2C)	49 (7SE,2SW,37C,3N)
5-17 years	1 (1C)	20 (1SE,19C)
18-49 years	0	106 (60SE,3SW,35C,8N)
50-64 years	1 (1SE)	129 (82SE,4SW,30C,13N)
≥65 years	3 (1SW,1C,1N)	101 (66SE,5SW,14C,16N)
<b>Total</b>	7 (1SE,1SW,4C,1N)	405 (216SE,14SW,135C,40N)

**Laboratory Surveillance (as of February 22):** During February 16-22, 3 influenza 2009 A/H1N1pdm (3SW) and 2 B (2SE) results were reported by MDCH Bureau of Laboratories. For the 2013-14 season (starting Sept. 29, 2013), MDCH has identified 327 positive influenza results:

- Influenza 2009 A/H1N1pdm: 305 (65SE,112SW,90C,38N)
- Influenza A/H3: 12 (9SE,2SW,1C)
- Influenza A unsubtypeable: 1 (1SE)
- Influenza A and B (LAIV recovery): 1 (1SE)
- Influenza B: 10 (6SE,2SW,2C)
- Adenovirus: 1 (1SE)
- Parainfluenza: 2 (1SE,1SW)
- Human metapneumovirus: 4 (4SW)

15 sentinel labs (SE,SW,C,N) reported for the week ending February 22, 2014. 15 labs (SE,SW,C,N) had steady or decreasing influenza A activity. 4 labs (SE,C) reported sporadic influenza B activity. 1 lab (SE) had sporadic parainfluenza activity. 14 labs (SE,SW,C,N) had steady or moderate RSV activity. 5 labs (SE,SW,C) reported sporadic or low hMPV activity. 3 labs (SE,SW) had sporadic or low adenovirus activity. Testing volumes at most sites are declining, but many remain moderate to high.

**Michigan Influenza Antigenic Characterization (as of February 27):** For the 2013-14 season, 2 Michigan influenza specimens (2C) have been characterized at CDC as A/California/07/2009-like/H1N1/pdm09, matching the influenza A/H1N1pdm09 strain in the 2013-14 Northern Hemisphere vaccine. 1

specimen (1C) has been characterized at CDC as B/Brisbane/60/2008-like, which is a B/Victoria lineage virus; it is not in the 2013-14 Northern Hemisphere trivalent vaccine but is in the quadrivalent vaccine. 1 specimen (1SE) has been characterized at MDCH as B/Massachusetts/02/2012-like, which is a B/Yamagata lineage virus that is included in both the 2013-14 trivalent and quadrivalent vaccines.

**Michigan Influenza Antiviral Resistance Data (as of February 27):** For the 2013-14 season, 95 2009 A/H1N1pdm (24SE,23SW,36C,12N) and 8 A/H3 (5SE,2SW,1C) influenza specimens have been tested at the MDCH BOL for antiviral resistance. None of the influenza specimens tested have been resistant.

CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza, which are available at <http://www.cdc.gov/flu/professionals/antivirals/index.htm>.

**Influenza-associated Pediatric Mortality (as of February 27):** 2 pediatric influenza-associated influenza mortalities (1SE,1C) have been reported to MDCH for the 2013-14 season.

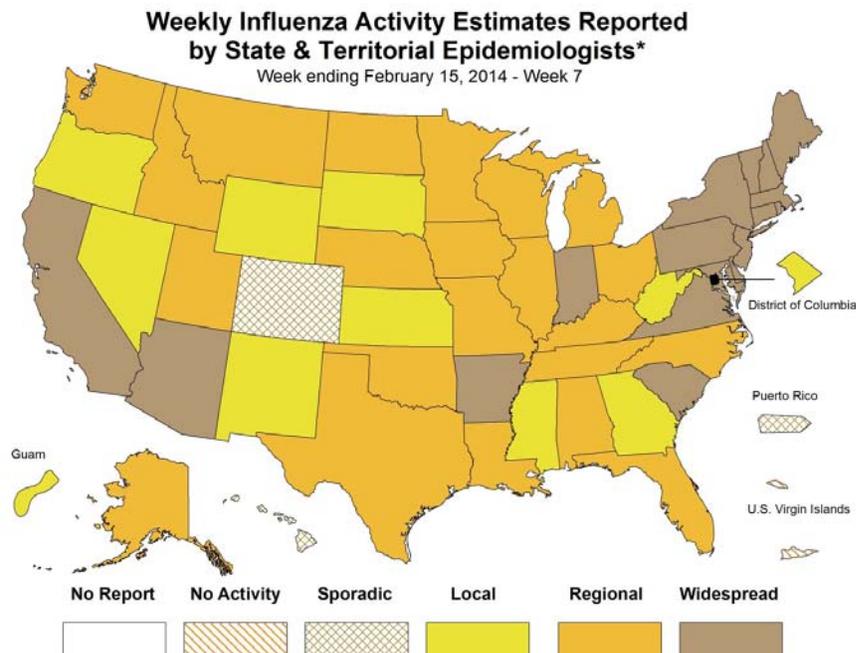
CDC requires reporting of flu-associated pediatric deaths (<18 yrs), including pediatric deaths due to an influenza-like illness with lab confirmation of influenza or any unexplained pediatric death with evidence of an infectious process. Contact MDCH immediately for proper specimen collection. The MDCH protocol is at [www.michigan.gov/documents/mdch/ME\\_pediatric\\_influenza\\_guidance\\_v2\\_214270\\_7.pdf](http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf).

**Influenza Congregate Settings Outbreaks (as of February 27):** 1 new respiratory outbreak (1SW) due to influenza in a long-term care facility was reported to MDCH during the previous week. 1 previously reported respiratory outbreak (1N) in a long-term care facility was confirmed as human metapneumovirus. 13 respiratory outbreaks (7SW,5C,1N) have been reported during the 2013-14 season:

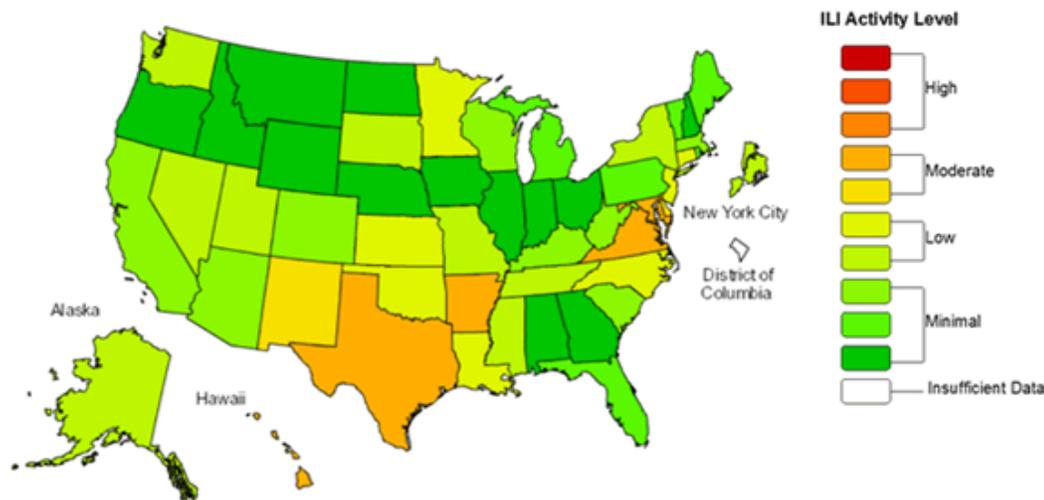
- Influenza 2009 A/H1N1pdm: 3 (2SW,1C)
- Influenza A/H3 positive: 1 (1SW)
- Influenza A positive: 2 (2SW)
- Influenza positive: 2 (2SW)
- Human metapneumovirus: 1 (1N)
- Negative/no testing: 4 (4C)

**National (CDC [edited], February 21):** During week 7 (February 9-15, 2014), influenza activity decreased, but remained elevated in the United States. Of 6,887 specimens tested and reported during week 7 by U.S. WHO and NREVSS collaborating laboratories, 958 (13.9%) were positive for influenza. The proportion of deaths attributed to pneumonia and influenza was above the epidemic threshold. Two influenza-associated pediatric deaths were reported. A season-cumulative rate of 26.1 laboratory confirmed influenza-associated hospitalizations per 100,000 population was reported. The proportion of outpatient visits for influenza-like illness (ILI) was 2.5%, above the national baseline of 2.0%. Nine of 10 regions reported ILI at or above region-specific baseline levels. Seven states experienced moderate ILI activity; 16 states and New York City experienced low ILI activity; 27 states experienced minimal ILI activity, and the District of Columbia had insufficient data. The geographic spread of influenza in 17 states was reported as widespread; 22 states reported regional influenza activity; the District of Columbia, Guam, and nine states reported local activity; Puerto Rico and two states reported sporadic activity, and the U.S. Virgin Islands reported no activity.

Complete weekly FluView reports are available online at: <http://www.cdc.gov/flu/weekly/>.



**Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet  
2013-14 Influenza Season Week 7 ending Feb 15, 2014**



This map uses the proportion of outpatient visits to healthcare providers for influenza-like illness to measure the ILI activity level within a state. Therefore, outbreaks occurring in a single city could cause the state to display high activity levels. Data collected in ILINet may disproportionately represent certain populations within a state, and therefore, may not accurately depict the full picture of influenza activity for the whole state. Data displayed on this map are based on data collected in ILINet, whereas the State and Territorial flu activity map are based on reports from state and territorial epidemiologists.

**International (WHO [edited], February 24):** In North America, influenza A(H1N1)pdm09 virus remained predominant. Influenza activity continued decreasing in Canada, Mexico and the United States of America, but remained at elevated levels. In Europe, overall influenza activity remained elevated. Trends suggests the wave of influenza activity is moving from south to north overall, with both influenza A viruses circulating. In Eastern Asia, activity remained high with influenza A(H1N1)pdm09 predominant. In Northern Africa and Western Asia, activity was variable, with Egypt reporting high activity of A(H1N1)pdm09 and increased number of severe cases. Based on FluNet reporting (as of 24 February), during 26 January to 8 February 2014, National Influenza Centres and other national labs from 93 countries, areas or territories reported data. The WHO GISRS labs tested more than 87378 specimens. 20777 were positive for influenza, of which 18487 (89%) were typed as influenza A and 2290 (11%) as B. Of the sub-typed A viruses, 9141 (77%) were A(H1N1)pdm09, 2735 (23%) were A(H3N2) and 1 (0%) was A(H5N1). Of the characterized B viruses, 127 (74.7%) belong to the B-Yamagata lineage and 43 (25.3%) to the B-Victoria lineage.

The full report is online at [www.who.int/influenza/surveillance\\_monitoring/updates/latest\\_update\\_GIP\\_surveillance/en/index.html](http://www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance/en/index.html).

**International, Vaccine (CDC [edited], February 21):** The WHO Vaccine Composition Meeting for the 2014-15 season was held February 17 -19, 2014. On February 20, the Meeting recommended that trivalent vaccines for use in the Northern Hemisphere 2014-15 influenza season contain the following:

- an A/California/7/2009 (H1N1)pdm09-like virus;
- an A/Texas/50/2012 (H3N2)-like virus;
- a B/Massachusetts/2/2012-like virus.

The Meeting also recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and a B/Brisbane/60/2008-like virus.

The full article is available online at <http://www.cdc.gov/flu/about/season/vaccine-selection.htm>.

MDCH reported REGIONAL INFLUENZA ACTIVITY to CDC for the week ending February 22, 2014

For additional flu vaccination and education information, the MDCH *FluBytes* newsletter is available at [http://www.michigan.gov/mdch/0,1607,7-132-2940\\_2955\\_22779\\_40563-125027--,00.html](http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html).

***Novel Influenza Activity and Other News***

**WHO Pandemic Phase:** Post-pandemic – Influenza disease activity has returned to levels normally seen for seasonal influenza.

**International, Human (WHO [edited], February 24):** On 20 and 21 February 2014, the National Health and Family Planning Commission (NHFPC) of China notified WHO of nine additional laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus.

Seven of the nine cases are males. The age range is 29 to 81 years. Cases were reported from Anhui (1), Hunan (2), Jilin (1) and Guangdong (5). One case died, six cases are in a critical condition, one case is in a severe condition and one case is in a stable condition. Six cases are reported to have had a history of exposure to live poultry. Investigations are ongoing.

The full article is available online at [http://www.who.int/csr/don/2014\\_02\\_24/en/](http://www.who.int/csr/don/2014_02_24/en/).

**International, Human (WHO [edited], February 27):** On 23 and 24 February 2014, the National Health and Family Planning Commission (NHFPC) of China notified WHO of five additional laboratory-confirmed cases of human infection with avian influenza A(H7N9) virus.

Three cases are males and two are females. The age range is 31 to 76 years. All the cases were reported from Guangdong Province. Four cases are in a critical condition and one is in a stable condition. Four cases are reported to have had a history of exposure to live poultry. Investigations are ongoing.

The full article is available online at [http://www.who.int/csr/don/2014\\_02\\_27/en/](http://www.who.int/csr/don/2014_02_27/en/).

**International, Human (WHO [edited], February 27):** On 25 February 2014, the National Health and Family Planning Commission (NHFPC) of China notified WHO of an additional laboratory-confirmed case of human infection with avian influenza A(H7N9) virus. The patient is a 71-year-old man from Foshan City in Guangdong Province. He became ill on 16 February, was hospitalised on 20 February and is currently in a critical condition.

The full article is available online at [http://www.who.int/csr/don/2014\\_02\\_27b/en/](http://www.who.int/csr/don/2014_02_27b/en/).

**International, Poultry (OIE [edited], February 22):** Highly pathogenic avian influenza H5N1; Vietnam  
Total outbreaks: 7; Species: Birds; Susceptible: 19962; Cases: 10356; Deaths: 10356; Destroyed: 9606

**International, Poultry (OIE [edited], February 25):** Highly pathogenic avian influenza H5N1; Vietnam  
Outbreak 1: Bac Lieu, BAC LIEU; Date of start of the outbreak: 24/02/2014; Epidemiological unit: Village  
Species: Birds; Susceptible: 2000; Cases: 2000; Deaths: 1000; Destroyed: 1000

Outbreak 1: Phu Tho, PHU THO; Date of start of the outbreak: 22/02/2014; Epidemiological unit: Village  
Species: Birds; Susceptible: 1113; Cases: 1113; Deaths: 1113; Destroyed: 0

Outbreak 2: Tieu Can, Tieu Can, TRA VINH; Date of start of the outbreak: 23/02/2014  
Epidemiological unit: Village  
Species: Birds; Susceptible: 1050; Cases: 1050; Deaths: 500; Destroyed: 550

Outbreak 3: Binh Dinh, BINH DINH; Date of start of outbreak: 23/02/2014; Epidemiological unit: Village  
Species: Birds; Susceptible: 790; Cases: 790; Deaths: 790; Destroyed: 0

**International, Poultry (OIE [edited], February 26):** Highly pathogenic avian influenza; Nepal  
Outbreak 1: Itahari Municipality 7, Itahari, Sunsari, KOSHI; Date of start of the outbreak: 13/02/2014  
Species: Birds; Susceptible: 2000; Cases: 570; Deaths: 570; Destroyed: 1430  
Affected population: A commercial layer farm in production stage kept in deep litter system

**International, Poultry (OIE [edited], February 26):** Highly pathogenic avian influenza; Cambodia  
Outbreak 1: Peam Lvea, Trapang Chau, Aoral, KG. SPEU; Date of start of the outbreak: 18/02/2014  
Epidemiological unit: Village; Affected population: Backyard poultry  
Species: Birds; Susceptible: 450; Cases: 210; Deaths: 210; Destroyed: 240

Outbreak 2: Tuol Sangkae, Kampong Kong, Koh Thom, KANDAL; Date of start of outbreak: 19/02/2014  
Epidemiological unit: Village; Affected population: Duck flocks in two households.  
Species: Birds; Susceptible: 250; Cases: 200; Deaths: 200; Destroyed: 50

**International, Wild Birds (OIE [edited], February 21):** Highly pathogenic avian influenza H5N1; India  
Outbreak 1: Joda, Bileipada, Keonjhar, ORISSA; Date of start of the outbreak: 31/01/2014

Species: House Crow: *Corvus splendens*(Corvidae); Cases: 2; Deaths: 2

**International, Panda (Emerging Infectious Diseases abstract, February 24):** Li D, et al. Influenza A(H1N1)pdm09 virus infection in giant pandas, China. *Emerg Infect Dis* [Internet]. 2014 Mar.

We confirmed infection with influenza A(H1N1)pdm09 in giant pandas in China during 2009 by using virus isolation and serologic analysis methods. This finding extends the host range of influenza viruses and indicates a need for increased surveillance for and control of influenza viruses among giant pandas.

The full article is available online at [http://wwwnc.cdc.gov/eid/article/20/3/13-1531\\_article.htm](http://wwwnc.cdc.gov/eid/article/20/3/13-1531_article.htm).

**International, Research (Emerging Infectious Diseases abstract, February 24):** Jones JC, Sonnberg S, Koçer ZA, Shanmuganatham K, Seiler P, Shu Y, et al. Possible role of songbirds and parakeets in transmission of influenza A(H7N9) virus to humans. *Emerg Infect Dis*. 2014 Mar.

Avian-origin influenza A(H7N9) recently emerged in China, causing severe human disease. Several subtype H7N9 isolates contain influenza genes previously identified in viruses from finch-like birds. Because wild and domestic songbirds interact with humans and poultry, we investigated the susceptibility and transmissibility of subtype H7N9 in these species. Finches, sparrows, and parakeets supported replication of a human subtype H7N9 isolate, shed high titers through the oropharyngeal route, and showed few disease signs. Virus was shed into water troughs, and several contact animals seroconverted, although they shed little virus. Our study demonstrates that a human isolate can replicate in and be shed by such songbirds and parakeets into their environment. This finding has implications for these birds' potential as intermediate hosts with the ability to facilitate transmission and dissemination of A(H7N9) virus.

The full article is available online at [http://wwwnc.cdc.gov/eid/article/20/3/13-1271\\_article.htm](http://wwwnc.cdc.gov/eid/article/20/3/13-1271_article.htm).

**International Poultry and Wild Bird Surveillance (OIE):** Reports of avian influenza activity, including summary graphs of avian influenza H5N1 outbreaks in poultry, can be found at the following website: [http://www.oie.int/download/AVIAN%20INFLUENZA/A\\_AI-Asia.htm](http://www.oie.int/download/AVIAN%20INFLUENZA/A_AI-Asia.htm).

**For questions or to be added to the distribution list, please contact Susan Peters at [peterss1@michigan.gov](mailto:peterss1@michigan.gov)**

**MDCH Contributors**

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**Table. H5N1 Influenza in Humans – As of January 24, 2014.** [http://www.who.int/influenza/human\\_animal\\_interface/EN\\_GIP\\_20130124\\_CumulativeNumberH5N1cases.pdf](http://www.who.int/influenza/human_animal_interface/EN_GIP_20130124_CumulativeNumberH5N1cases.pdf). Downloaded 02/05/2014. Cumulative lab-confirmed cases reported to WHO. Total cases include deaths.

Country	2003-2010		2011		2012		2013		2014		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Azerbaijan	8	5	0	0	0	0	0	0	0	0	8	5
Bangladesh	1	0	2	0	3	0	1	1	0	0	7	1
Cambodia	10	8	8	8	3	3	26	14	0	0	47	33
Canada	0	0	0	0	0	0	1	1	0	0	1	1
China	40	26	1	1	2	1	2	2	0	0	45	30
Djibouti	1	0	0	0	0	0	0	0	0	0	1	0
Egypt	119	40	39	15	11	5	4	3	0	0	173	63
Indonesia	171	141	12	10	9	9	3	3	0	0	195	163
Iraq	3	2	0	0	0	0	0	0	0	0	3	2
Lao PDR	2	2	0	0	0	0	0	0	0	0	2	2
Myanmar	1	0	0	0	0	0	0	0	0	0	1	0
Nigeria	1	1	0	0	0	0	0	0	0	0	1	1
Pakistan	3	1	0	0	0	0	0	0	0	0	3	1
Thailand	25	17	0	0	0	0	0	0	0	0	25	17
Turkey	12	4	0	0	0	0	0	0	0	0	12	4
Vietnam	119	59	0	0	4	2	2	1	1	1	126	63
Total	516	306	62	34	32	20	39	25	1	1	650	386